DOCUMENT RESUME

ED 246 242 CE 039 280

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TITLE	Open Learning Systems in Further Education. Some Aspects of Resource Management. Coombe Lodge Working Paper. Information Bank Number 1611.
INSTITUTION	Further Education Staff Coll., Blagdon (England).
PUB DATE	Jul 82
NOTE	17p.
PUB TYPE	Viewpoints (120)
EDRS PRICE	MF01/PC01 Plus Postage.
DESCRIPTORS	Adult Education; Counseling; Educational Administration; Educational Economics; *Educational Resources; *Higher Education; Material Development; *Open Education; Postsecondary Education; *Resource Allocation; *Student Teacher Ratio; Tutoring; Tutors; Vocational Education
IDENTIFIERS	*Great Britain; *Resource Management

ABSTRACT

Open learning systems require the development of learning materials. Potential economies of scale and quality control advantages argue in favor of the central development of materials packages. Instructors would be free to concentrate upon the provision of tutorial and counseling support and laboratory and workshop hands-on experience. Some method is needed for calculating the equivalent of the student-staff ratio, the most extensively used resource utilization performance indicator in further education. One method depends upon (1) identification of an equivalent conventional mode of study--the analogue, (2) negotiation of notional weekly hours and target class sizes, and (3) management of the deployment of open learning tutors on the basis of the class contact equivalent derived by dividing the target class size by the notional weekly hours. Since the nature of open learning emphasizes the importance of initial counseling and a secure, up-to-date student record, a slightly higher level of administrative support is required. Fees of open learning students should be expected to be comparable with the rest of further education and would provide in full for maintenance of their learning materials. Their fees, however, would not recover the full cost of counseling and tutorial support. (Some data analyses are appended.) (YLB)

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Coombe Lodge
Working Paper

Information
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ED246242

Open Learning Systems in Further Education
Some Aspects of Resource Management

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July 1982

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Open Learning Systems in Further Education

Some Aspects of Resource Management

> "Open Learning Systems aim to offer the student more degrees of freedom with regard to what? when? and where? The universal characteristics of such systems are that they :
>
> * provide the student with especially prepared learning materials for his private study ;
>
> * provide a mark and comments service for the student's written work ; and
>
> * provide some counselling and tutorial support.
>
> Insofar as they succeed in offering the student more degrees of freedom they modify the extent and the nature of the link between student and teacher".

Introduction

The mechanisms of resource allocation and resource utilisation control used in further education are based on concepts of college attendance and eyeball-to-eyeball contact of students and teachers. However, Open Learning does not depend upon regularly scheduled classroom meetings. Indeed, any arrangement which requires a student to follow a predetermined pattern of attendance limits his freedom to choose place and pace and thus closes rather than opens the learning system.

Today open learning accounts for less than one per cent of the full-time equivalent students in further education. Most of these students are enrolled in schemes which have been resourced on an *ad hoc* basis, often by a so-called economic fee. If open learning is to develop and extend significantly some calculus for bringing it into line with the conventional resource procedures is required.

Typically "teachers" account for between 65% and 70% of the recurrent expenditures of a college. So it may be argued that the most significant resource questions relate to the deployment of academic staff. This paper concentrates upon this central concern but it also touches upon the question of clerical support and fees.

Accounting for the Academic Staff Resources Required to Develop Learning Materials

The identification, production and validation of learning materials is

crucial to the development of more flexible learning opportunities. The inability to invest in these tasks has been one of the main inhibitors to the earlier adoption by further education of open learning. A number of questions arise - for example :-

* How much material is already available in a form in which it can be used directly or after minor modification?

* How significant are the costs of tracing, evaluating, categorising and marketing these existing materials?

* How significant are the costs of the *ab initio* development of purpose designed materials?

* What are the economies of scale in such enterprises and how can these economies be exploited?

It is to be hoped that the Open Tech or someone will encourage and finance the enquiries necessary to answer these questions. In this paper we simply speculate on the academic staff costs involved in the development of learning materials.

Consider the workload involved in the writing of a 75 student-hour package (i.e. the learning material required by a typical single subject evening-only student). Learning materials range from anotated reading lists through to the highly professional productions of the Open University. It follows that the writing workloads also vary enormously.

In North America, where writing learning materials is a more common teacher task, it is not unusual to allow 10 hours of teacher writing to produce one hour of student learning material. On the other hand, the British Armed Forces and British Telecommunications all suggest that this ratio may be much higher. In addition to the basic writing task it is necessary to allow for illustration, editing and for the preparation of self-test material and tutor-marked assignments and assessments. Moreover, the package has to be validated to ensure that students can actually achieve the learning objectives which have been set. Taking all these tasks into consideration, the investment of lecturer time required to produce one hour of student learning material may be as high as 40:1. At this level of investment the academic staff component of the development cost would be about £30,000 (*See Appendix A*).

This cost is a fixed cost and becomes insignificant if it is spread over a sufficient student throughput. For example, if we assume a five-year life the *per capita* cost is £600 with a student enrolment of 10 per annum and £6 with an enrolment of 1000 per annum.

The Open University suggests that the cost of keeping a materials package up-to-date is roughly one half of the initial development cost. Thus if we assume a life of 5 years the lecturer cost involved in the maintenance of a 75 student-hour package would be about £15,000 or £3 per student with an enrolment of 1000 per annum.

From the above (and bearing in mind that printing costs per copy are reduced as the size of the print-room increases) it is reasonable to assume that there are economies of scale including quality control advantages to be derived from a central direction of the materials production and marketing effort. Such an approach would leave colleges free to concentrate upon the provision of tutorial and counselling support and laboratory and workshop "hands-on" experience. The Staff College (FESC 1981) has argued strongly

that the Open Tech Unit should initially focus its resources on pump-priming the development of learning materials and that these developments would be most economically arranged on a national or regional consortia basis. If this were to happen the large majority of FE lecturers concerned with open learning would be providing counselling and tutorial support rather than writing materials. Let us now turn to the question of how to account for this tutorial support.

Accounting for the Tutorial Support of Open Learning

There is no one definite procedure for deciding upon the number of lecturers required by a college. LEA practice varies but in most cases the academic staff establishment is a function of past and/or planned patterns of classroom contact. The most extensively used resource utilisation performance indicator in further education - the student staff ratio (SSR) - is also based upon lecturer/student classroom contact.

Two measures underpin academic staff resource management :

* *teacher class contact hours* (i.e. a teacher's eyeball-to-eyeball contact with students)

  - which is a proxy for teacher workload ; and

* *student taught hours* (i.e. a student's eyeball-to-eyeball contact with teachers)

  - which is a proxy for the level of activity or of the outcomes of the system.

For example, suppose a conventional evening-only, single-subject, O-Level course was scheduled to meet for 2½ hours per week for an academic year of 36 weeks and the enrolment was 20 students, the teacher class contact hours are given by 2½ hours per week for 36 weeks (i.e. 90 hours) and the student taught hours equal 2½ hours per week for 36 weeks for 20 students (i.e. 1800 hours). The "establishment" and SSR calculations are based on these counts (*see Appendix B*). Is it possible to establish equivalent measures of workload and activity for open learning?

One solution would be to follow the following procedure (Birch and Latcham 1981) :

1. Identify an analogue i.e. establish a credible comparison between the open learning under consideration and the most likely alternative method of study. For example, a *FlexiStudy* student following a single-subject O-Level programme might be considered to equate with an *evening-only* student following a single-subject O-Level programme.

2. Agree for the open learning course the *NOTIONAL WEEKLY HOURS*. This might be done by reference to the weekly teacher class contact hours of the analogue course.

3. Agree for the open learning course the *TARGET CLASS SIZE*. Again this might be accomplished by reference to what would be an acceptable enrolment for the analogue class.

4. Calculate the *CLASS CONTACT EQUIVALENT* i.e. the number of students from the open learning course whose supervision is agreed to be equivalent to one hour of teacher class contact. The Class Contact Equivalent is

given by :-

$$\frac{\textit{TARGET CLASS SIZE}}{\textit{NOTIONAL WEEKLY HOURS}}$$

5. Identify :

(a) The *CASE LOAD* i.e. the total number of open learning students assigned to a tutor for supervision ; and

(b) The *NUMBER OF WEEKS* the case load is assigned to the tutor for supervision.

6. Calculate :

(a) the *student taught hours* =

(CASE LOAD) x (NOTIONAL WEEKLY HOURS) x (NO. OF WEEKS) ; and

(b) the *teacher class contact hours* =

$$\frac{\textit{(CASE LOAD)}}{\textit{(CLASS CONTACT EQUIVALENT)}} \times \textit{(NO. OF WEEKS)}$$

The caseload and the Number of Weeks are matters of fact, the Notional Weekly Hours and the Target Class Size (and hence the Class Contact Equivalent) are matters for negotiation. An agreement on Notional Weekly Hours would reflect the teacher class contact hours being operated on the analogue programme : an agreement on the Target Class Size would reflect the class sizes being achieved on the analogue programme. However, the agreement on Target Class Sizes ought also to take account of the relationship between Target Class Size and the SSR. Birch and Latcham (1981) demonstrate that for non-advanced further education the SSR is approximately :

$$^2/_3 \times \textit{(TARGET CLASS SIZE)}$$

Therefore, to achieve an SSR of 10:1, the Target Class Size must be set at 15.

The data base from which it would be possible to agree Notional Weekly Hours and Target Class Sizes is generally available in most colleges. For example, for the O and A-Level evening only courses at Barnet College in 1977/78 (see Birch and Cuthbert 1981) :

* the average student taught hours was 69.8 (i.e. about 2 hours per week over a 35 week year) ; and

* the average class size was 20.1

This information suggests that at Barnet College in that year for *FlexiStudy* students studying for a single subject O or A-Level the following should apply:

* *NOTIONAL WEEKLY HOURS* : 2 hours ; and

* *TARGET CLASS SIZE* : 20

Whence :-

* *CLASS CONTACT EQUIVALENT = 20/2 = 10*

Therefore, for a tutor with a caseload of 30 *FlexiStudy* students assigned to him for supervision over a 35 week year the counts would have been :

* *student taught hours* = 30 x 2 x 35 = 2100 hours ; and

* *teacher class contact hours* = (30/10) x 35 = 105 hours

Since the tutor would have received 30/10 = 3 hours class contact credit ("remission") per week. The student taught hours figure can be used in grouping and grading calculations under the Burnham (FE) agreement : the teacher class contact hours can be used in establishment calculations (*See Appendix B*).

A procedure which establishes the resourcing counts for an open learning course by reference to an analogue conventional programme will tend to establish an equivalence of costs per student enrolled. Cost may not be considered the important criteria but if open learning schemes prove to be more costly than traditional courses this would surely hinder their development.

Initial Counselling

The routine support of open learning students will involve lecturers in counselling activities probably to a greater extent than is the case with conventional courses. There is a phase of counselling at the point of enrolment which calls for special skills and experience. Initial counselling is often carried out by the lecturer with overall responsibility for the supervision of open learning. Initial counselling needs to confirm the prospective student's choice of course and to ensure that the student understands the nature of the demands made by this type of learning. At the initial counselling it is as well to secure from the student an agreement on the frequency of assignment submissions. This agreed pattern will provide the trigger for prompting action which may help to maintain motivation. There is general agreement that effective initial counselling will reduce wastage - it will also divert some students to conventional courses.

There is no certainty about the amount of effort involved in initial counselling. Estimates of the time required for an interview vary widely but 30 minutes would seem reasonable. To secure 100 enrolled students it might be necessary to interview (say) 150. So the initial counselling time would be approximately 75 hours per 100 students or about 2 hours per week if averaged over the year. This investment of counselling effort might be ensured either by allowing the counsellor an *abatement* of his class contact or by appointing him in a grade which had a lower class contact commitment.

"Active" Students

Open learning aims to give the student more freedom with regard to entry and exit points and to the choice of pace in between. The effect of this bears upon the *caseload* count. The problem is determining the point at which a student is deemed to have withdrawn. Thus there may be a danger of allocating the expensive lecturer resource to non-existent students. One solution is to ensure that the caseload count is a count of *active* students where an active student is defined as one who has demonstrated his continuing participation in the programme. The precise definition of an active student

is a matter for local agreement. However, it is probably necessary to review student progress at least once a term and to adjust teacher workloads accordingly. In this way the college can avoid entering into open ended commitments to provide tutorial support over indefinite timescales leading to unreal caseloads.

SSR calculations are based on *enrolled* students and *planned* teacher class contact hours. However, the Burnham arrangements for deciding on the "group" of a college and the "grade" of a department require (so far as part-time students are concerned) a count of *registered* attendance. The concept of an "active" caseload matches the concept of registered attendances and, coupled with Notional Weekly Hours, provides a basis for accounting for Burnham Unit Totals.

Administrative Support

The tasks involved in the administrative support of open learning include the despatch of learning materials and marked assignments, the receipt and routing of assignments for marking to the appropriate tutor, message handling and the maintenance of the student record. It is sometimes argued that this set of tasks is wider than those involved with conventional students. Hence the level of administrative support required by an open learning student is higher than that for a conventional student. The *Barnet FlexiStudy Manual* (1980) suggests an allowance of 4 minutes per week for each FlexiStudy student but it concedes that this figure was arrived at by "Guesswork" (page 9). How does this "guesswork" compare with the usual levels of clerical provision within colleges?

The level of administrative support varies widely not only across LEAs but also within an LEA across colleges. There are no national formulae for determining the administrative and clerical staff of a college. However a national survey in 1977 revealed that the average student/administrative and clerical staff ratio for all "major establishments of further education other than polytechnics" was one post for every 69 FTE students (the average ratio in the polytechnics was 35:1). A ratio of 69:1 equates to about 3.2 minutes per FlexiStudy student. *(Appendix C)*.

It would seem,therefore, that Barnet's "guesswork" was not too far away from the national norm. Administrative and clerical staff typically account for less than 4% of the total recurrent expenditures of a college. Therefore, a slightly higher level of administrative support for open learning students as compared with conventional students is unlikely to materially effect the resulting comparative unit costs.

Fees

In the recent past difficulties have arisen because of attempts to introduce open learning without increasing college budgets. Open learning students are sometimes required to pay a fee which is claimed to be "full-cost". Usually the fee is more accurately described as covering the marginal costs since it attempts to recover the lecturer cost invariably on the basis of overtime and with reference to part-time rates.

It has to be appreciated that in general there is no direct connection between costs and fees in FE. In fact,to the extent that there is any general practice,fees for home based students typically recover only about 20-25% of costs. At *Appendix A* the cost of lecturer is calculated at £9.52 per hour. This figure was based on lecturer attendance in-college but typically a lecturer provides only 20 hours per week of class contact for 36 weeks. The lecturer cost of one class contact hour is thus £15. Academic

staff salaries account for about 60% of total college expenditures. Therefore, the total cost (including technician and administrative support and other overheads) of one class contact hour is about £15 x 100/60 = £25. Thus an evening only course of 2 hours per week for 36 weeks costs 72 x £25 = £1800. To recover this cost from (say) 20 enrolled students would require a fee of £90 whereas the LEA probably charges about £20. The long-run average cost is recovered by the fees charged in some cases - MSC courses are an example - but generally fees do not recover full cost.

The question is should open learning students be treated in any way differently from students on conventional courses? In equity the answer must be that they should be in no way either advantaged or disadvantaged. Therefore, in the long run open learning must be established on a basis and with a fee structure which is directly comparable with the rest of the FE Service. This means that although they may be required to pay in full for their learning materials, their tutorial fee is most unlikely to recover the full cost.

One of the advantages of an open learning scheme is the ability to enrol at any time and for the student to be able to adjust the pace of his study to meet his own situation. Inspite of this it is generally advisable to allocate a design length to each of the courses. This design length will be used to determine the fee structure. There will be many advantages in setting the design length at approximately one academic year. It is generally wise to place some limit on the college commitment to provide tutorial support in return for the course fee. An alternative is to allow support for a certain period in return for the initial fee but to make a renewal charge or second fee payable at the beginning of later years. The more clearly it is recognised that there is very little connection between fees and cost the less concerned we shall be about the comparatively few students who take a very long time to complete.

Summary

Open learning systems require the development of learning materials. Potential economies of scale and quality control advantages argue in favour of the central development of these packages. Therefore, the majority of lecturers involved in open learning will be providing counselling and tutorial support rather than writing learning materials.

Student activity and teacher workloads are traditionally assessed in further education by an analysis of the pattern of classroom contact. This convention is written into Burnham and reinforced by the conditions of service agreements and (more recently) by the SSR calculation. These rules are unlikely to be changed in the foreseeable future. If open learning is to become significant in further education some calculus for bringing it into the ambit of the normal measurement processes is required. This paper has demonstrated a way of achieving this objective. It depends upon :

* identifying an equivalent alternative conventional mode of study - the analogue ;

* with this analogue as a reference point, negotiating (i) Notional Weekly Hours and (ii) Target Class Sizes ;

* managing the deplcyment of open learning tutors on the basis of the Class Contact Equivalent which is derived by dividing the Target Class Size by the Notional Weekly Hours.

Given these arrangements and (a) the caseload and (b) the Number of Weeks it is possible to satisfy the need to count teacher class contact hours and student taught hours and so compute establishments and SSRs.

The nature of open learning emphasises the importance of initial counselling and of a secure and up-to-date student record. To avoid an inequitable distribution of resources and an open-ended commitment the caseload should be a count of "active" students.

The question of the appropriate administrative and clerical support for open learning was also touched upon. There are wide differences between colleges in the levels of support they provide for conventional students. The level of administrative support is unlikely to be a significant component of the cost per student.

In the long run open learning students may be expected to pay fees which would provide in full for the maintenance of their learning materials but would not recover the full cost of the counselling and tutorial support.

REFERENCES

BARNET College of Further Education (1980) Flexistudy : a manual for local colleges. (Series 2 ; 4) National Extension College.

BIRCH, Derek W & Cuthbert, Robert E (1981) Costing open learning in further education. Council for Educational Technology. ISBN 0-86184-033-X.

BIRCH Derek W & Latcham, Jack (1981) Accounting for academic staff resources for the support of open learning. (Coombe Lodge Information Bank Paper; 1605) Coombe Lodge.

FURTHER Education Staff College (1981) A Further Education Staff College response to "An open tech programme : MSC". (Coombe Lodge Information Bank Paper ; 1653). Coombe Lodge.

APPENDIX A

75 Hour Learning Package : Academic Staff Cost

Assumptions :

* Average lecturer salary is the top point of the Lecturer 1 scale i.e. £9267

* Average lecturer hours are 38 weeks x 30 hours per week i.e. 1140 hours per annum

* The development of a 75 student-hour package requires an investment of 3000 lecturer-hours.

Lecturer Cost Per Hour :

	£
Salary	9267
N.I.	804
Superannuation 8.4%	778
	10849

£10849/1140 hours = £9.52 per hour.

Lecturer Cost Per 75 Student-Hour Package

3000 hours at £9.52 per hour = £28,560.

APPENDIX B

DETERMINING A COLLEGE "ESTABLISHMENT"

N.B. There is no one recommended procedure - practice varies. Below is one possible method which is representative

---

Step 1 Analyse the teacher class contact hours by category of work :

E.G. Category	Teacher Class Contact Hours
II/III	4,000
IV	10,000
V	10,000
	24,000

Step 2 Distribute teacher class contact hours between grades of staff by reference to *Appendix II A Burnham* :-

Category of Work	Grade	Proportion of posts
I	PL	20% - 30%
	SL/LII	70% - 80%
II/III	PL	10% - 25%
	SL/LII	75% - 90%
IV	SL	0% - 5%
	LII	40% - 65%
	LI	30% - 60%
V	SL	0% - 5%
	LII	15% - 25%
	LI	70% - 85%

Thus (assuming "most favourable" proportions)

Category	Teacher Class Contact Hours	PL (25%)	SL/ LII (75%)	SL	LII	LI
II/III	4000	1000	3000	(5%)	(65%)	(30%)
IV	10000			500	6500	3000
				(5%)	(25%)	(70%)
V	10000			500	2500	7000
	24000	1000	3000	1000	9000	10000

Step 3 Identify agreed workloads for grades of staff by reference to conditions of work agreements. For example :

Grade	Class Contact Hours Per Week
LI	20-22
LII	17-20
SL	15-18
PL	13-16

Assuming "least favourable" workloads and a 36 week teaching year :

Grade	Workloads per Annum
LI	792 hours
LII	720 hours
SL	648 hours
PL	576 hours

Step 4 Hence determine "establishment" i.e.

PL = 1000/576 = 1.7

SL = (1500 + 1000)/648 = 3.9

LII = (1500 + 9000)/720 = 14.6

LI = 10000/792 = 12.6

THE STUDENT STAFF RATIO (SSR)

$$SSR = \frac{\text{FTE Students}}{\text{FTE Staff}}$$

* FTE Students =

Full-time students

+

0.9 x Sandwich Students

+

$$\frac{\text{1.1 "Short Full Time" Students } \textit{Taught Hours}}{\text{Typical } \textit{Taught Hours} \text{ of a Full-time Student}}$$

+

$$\frac{\text{Part-time Students } \textit{Taught Hours}}{\text{Typical } \textit{Taught Hours} \text{ of a Full-time Student}}$$

* FTE Staff =

Full-time Lecturers up to and including HODs

+

$$\frac{\text{Part-time Teachers' } \textit{Class Contact} \text{ Hours on Advanced Work}}{18 \times \text{No. of Weeks}}$$

+

$$\frac{\text{Part-time Teachers' } \textit{Class Contact} \text{ Hours on Non-Advanced Work}}{21 \times \text{No. of Weeks}}$$

Calculating the SSR for (say) FlexiStudy

Suppose :

* Notional weekly hours : 2½
* Target class size : 15
* Therefore class contact equivalent : 15/2½ = 6
  (i.e. for every six students in his caseload the Tutors receive 1 hour of class contact credit).
* case load : 30
* number of weeks : 36
* typical taught hours of a full-time student = 27 hours per week for 36 weeks.

$$SSR = \frac{\text{FTE Students}}{\text{FTE Staff}}$$

* FTE Students = $\frac{\text{Part-time Students' Taught Hours}}{\text{Typical Taught Hours of a Full-time Student}}$

= $\frac{\text{(Case Load) (Notional Weekly Hours) (No. of Weeks)}}{27 \times 36}$

= $\frac{(30)\ (2\frac{1}{2})\ (36)}{(27)\ (36)}$

= 2.7

* FTE Staff = $\frac{\text{Teachers' Class Contact Hours}}{(21)\quad (\text{No. of Weeks})}$

= $\frac{\text{(Case Load)}\ (\text{No. of Weeks})}{\text{(Class Contact Equivalent)} \times \text{No. of Weeks}}$

= $\frac{30/6 \times 36}{21 \times 36}$

= 0.24

* SSR = $\frac{2.7}{0.24}$

= 11.6